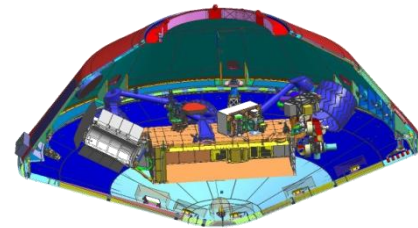
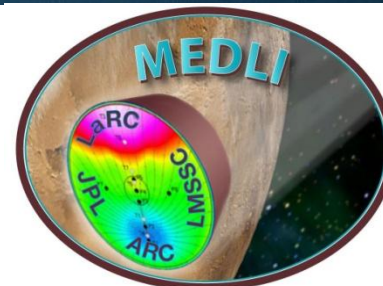
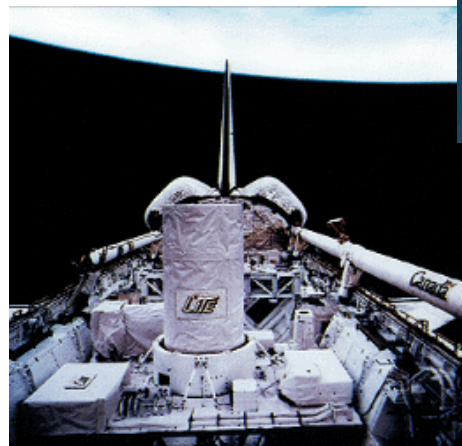
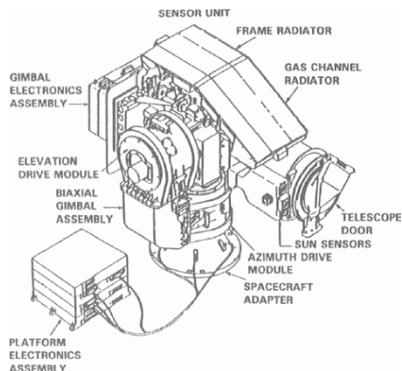


# R140- Flight Instruments Build & Test Clean Room

- 1800 square feet @ 65°F  $\pm 2^\circ\text{F}$  & 35%  $\pm 5\%$  relative humidity
- Cleanable surfaces
- Positive pressure
- Uninterrupted power with backup generator and/or battery backup
- 2-ton tracked hoist
- Intercom
- First floor, medium-bay (13-14 ft ceiling) with large access doors
- Class-10,000 clean room (with bathroom) capable of being subdivided into even cleaner space with benches and tents
- Purpose: the ability for clean in-house build and test of flight instruments
- Past: HALOE, LITE, LASE, SAGE-III, EVA IR Camera
- Present: MEDLI
- Future: LE-X



# R152 Flight Instruments Build & Test Pre-Clean Room

- 1800 square feet
- First floor, high bay with large access doors
- Ovens for baking out and cleaning
- Small pressure chambers (bell jars & 3-foot diameter by 4-foot long thermal-vac chamber) for pressure testing
- Purpose: room adjacent to the clean room for preparing hardware for the clean room
- Past: HALOE, LITE, LASE, EVA IR Camera
- Present: MEDLI
- Future: LE-X



# R152A Field Instruments Deployment Lab

- 1200 square feet
- First floor, high bay with large access doors
- Shelter and power for preparing CONEX labs for deployments
- Purpose: storage and preparation of repeatedly field-deployable aircraft and balloon instruments
- Past: LASE, GAMS, FIRSC
- Present: NAST-I, FIRST, HSRL
- Future: ALHAT, INFLAME

HSRL in B200



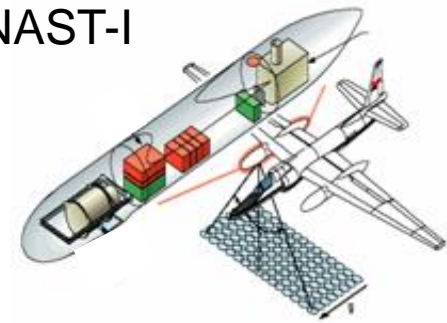
FIRST balloon launch



FIRSC



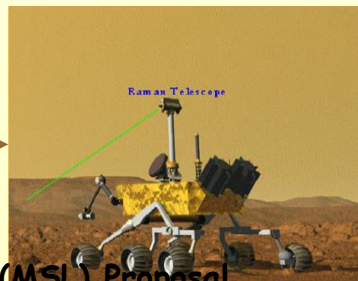
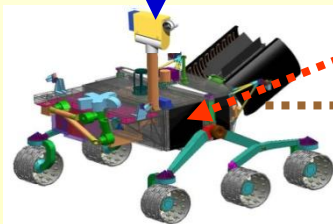
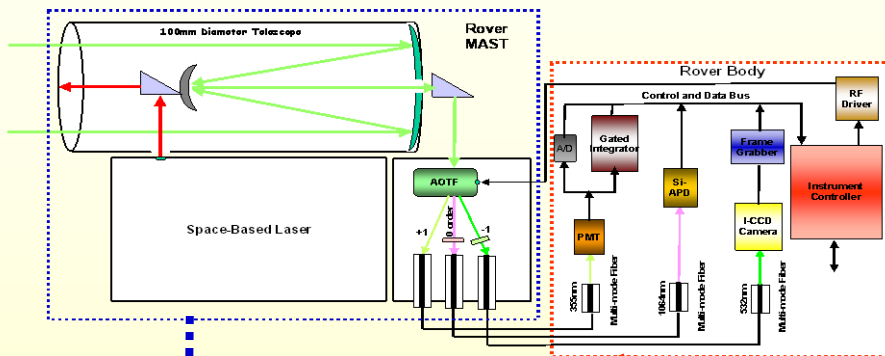
NAST-I



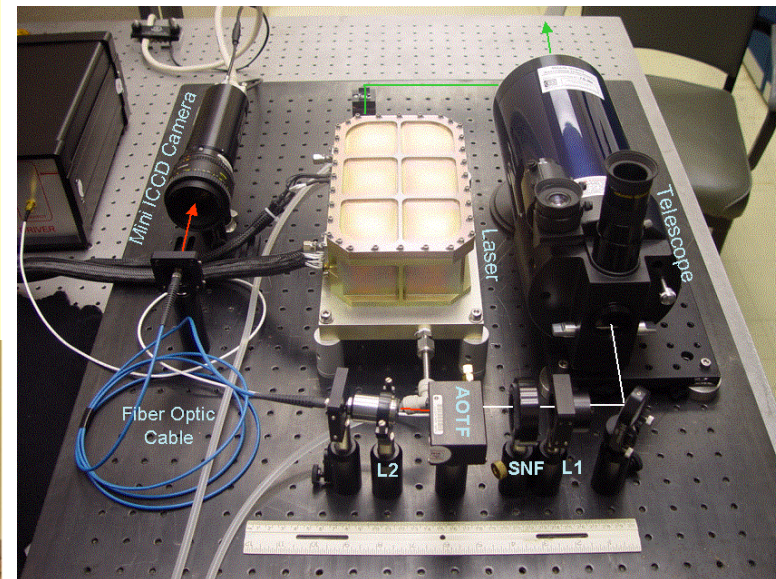


# R 244 Advanced Concepts Development Lab

- 400 square feet
- Purpose: ability to experiment and prototype advanced concepts at low technology readiness levels (TRL 1-3)
- Past: X-ray mammography
- Present: Raman spectrometer
- Future: is yet to be discovered



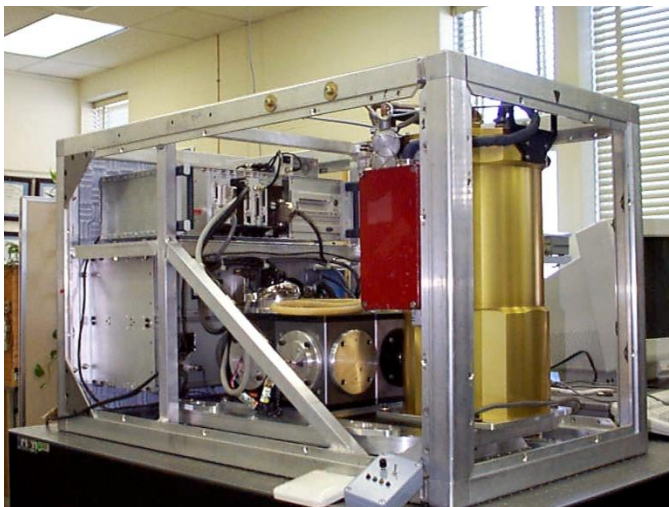
Raman spectrometer in lab



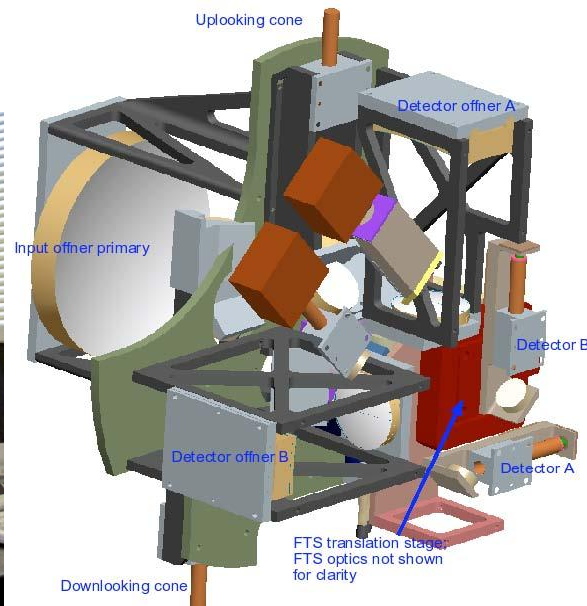
# R 262 Spectrometers Development Lab

- 1200 square feet
- Geo-isolated to minimize vibration sensitivities
- Purpose: to develop and test spectrometer methodologies, technology concepts and instruments such as Fourier Transform Spectrometers and Grating Spectrometers
- Past: FIRSC, NAST-I
- Present: GIFTS, FIRST, INFLAME
- Future: CLARREO

FIRSC in Lab



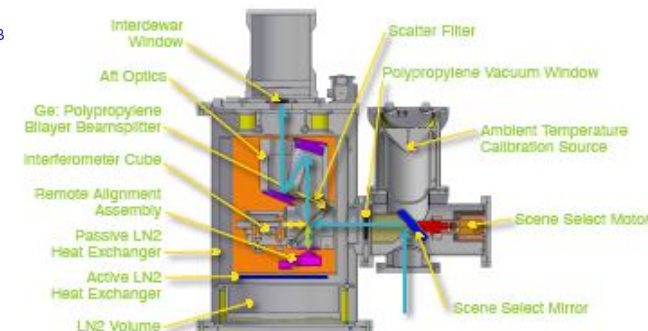
INFLAME Concept



FIRST



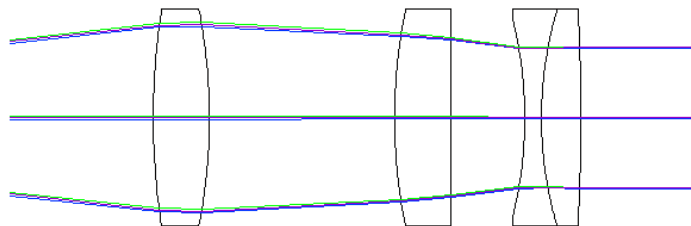
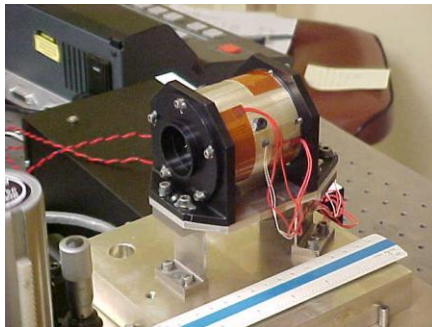
Instrument Description



# TBD Optical Receiver Development Lab

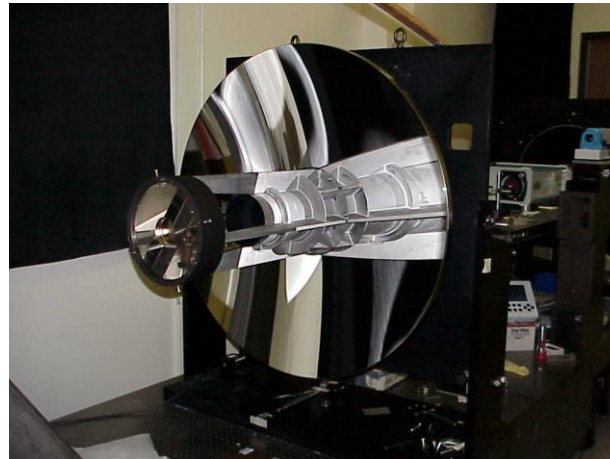
- 400 square feet
- Purpose: to develop subsystems such as telescopes and spectral filters for both passive and active (lidar) optical receiver systems
- Past: LITE, LASE, CALIPSO
- Present: HSRL, ALHAT
- Future: ACE, ASCENDS

CALIPSO Etalon in Oven Housing



CALIPSO refractive collimator

CALIPSO Telescope



HSRL Telescope Receiver

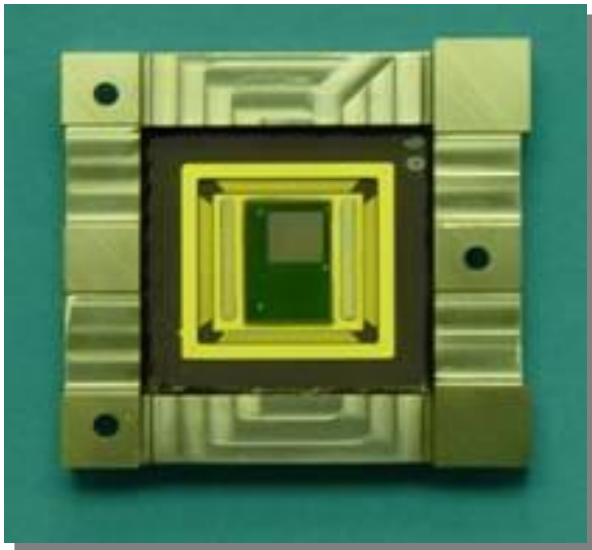




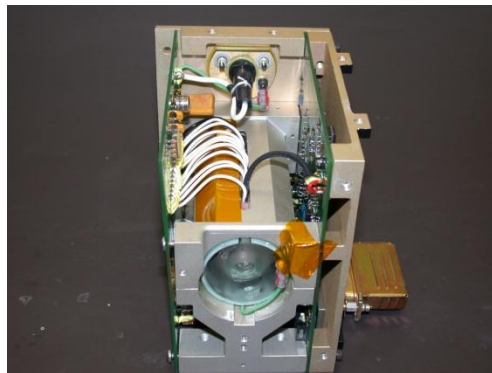
# R 238/238A Optical Detectors Development & Test Lab

- 600 square feet
- Purpose: to develop and test both single-element and array detectors from the ultraviolet to the far infrared of the spectrum
- Past: HALOE, LITE, LASE, SAGE-III, GAMS, CALIPSO, GIFTS
- Present: ALHAT, HSRL
- Future: CLARREO, ACE, ASCENDS, GEO-CAPE

GIFTS Active Pixel Sensor



Photomultiplier  
Tube

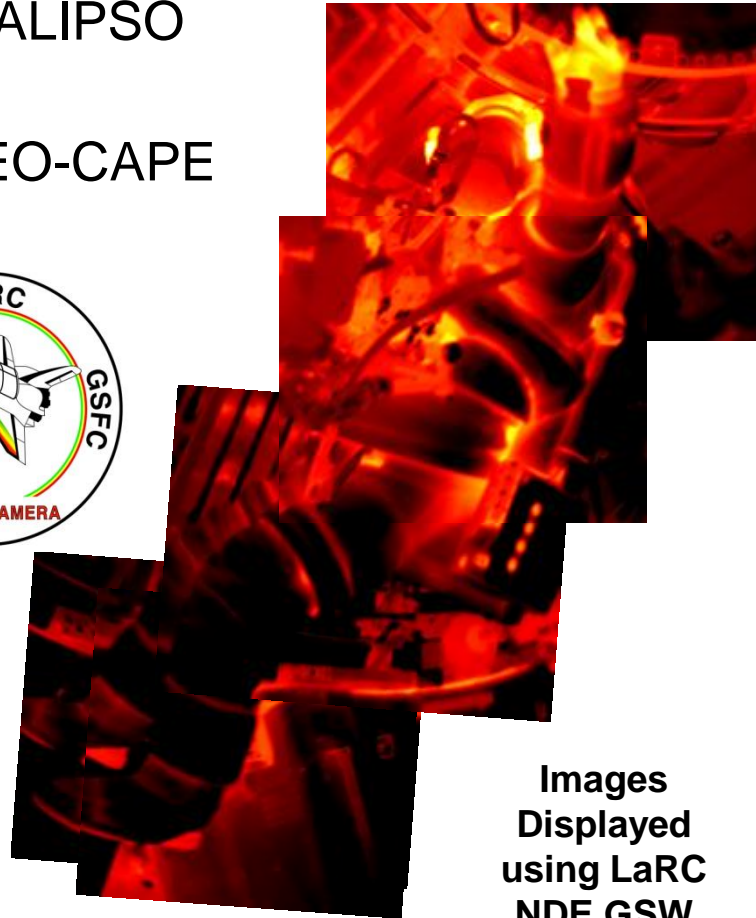
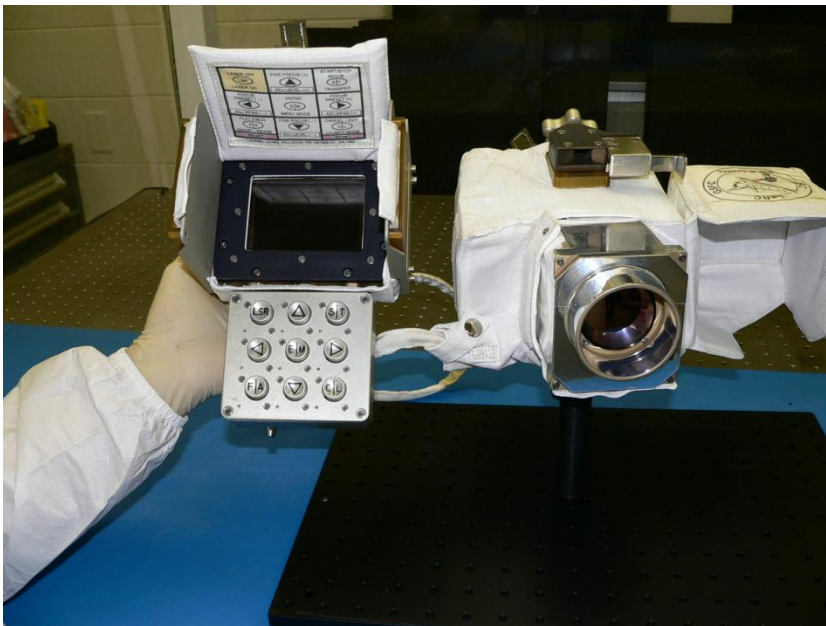


Avalanche  
Photodiode



# R242 Cameras Development & Test Lab

- 400 square feet
- Purpose: to develop and test camera systems from the ultraviolet to the far infrared of the spectrum
- Past: GAMS, GIFTS, EVA IR Camera, CALIPSO
- Present: ALHAT
- Future: CLARREO, ACE, ASCENDS, GEO-CAPE

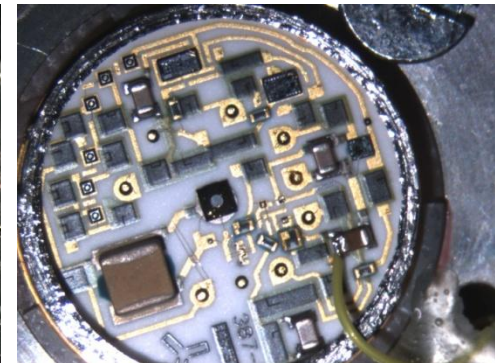
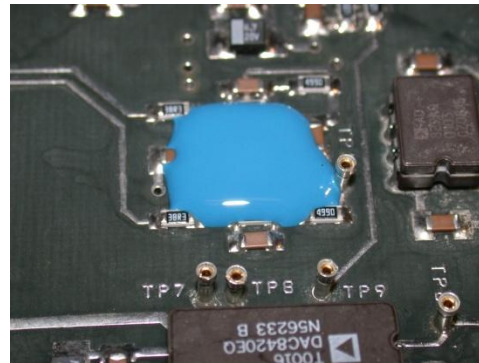
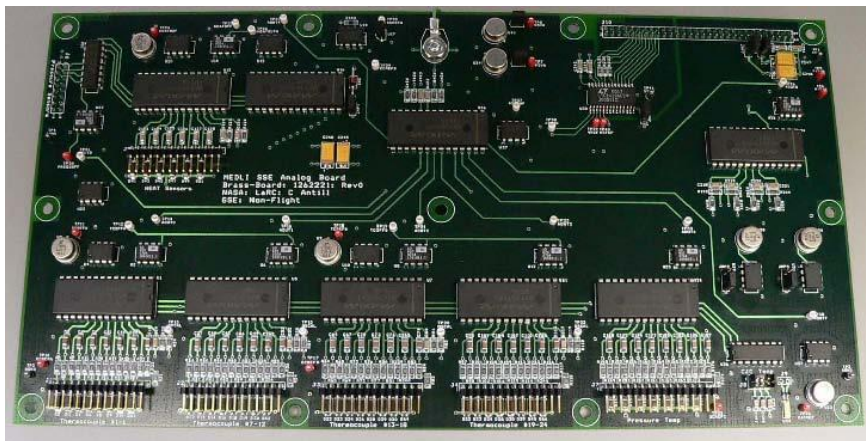


Images  
Displayed  
using LaRC  
NDE GSW



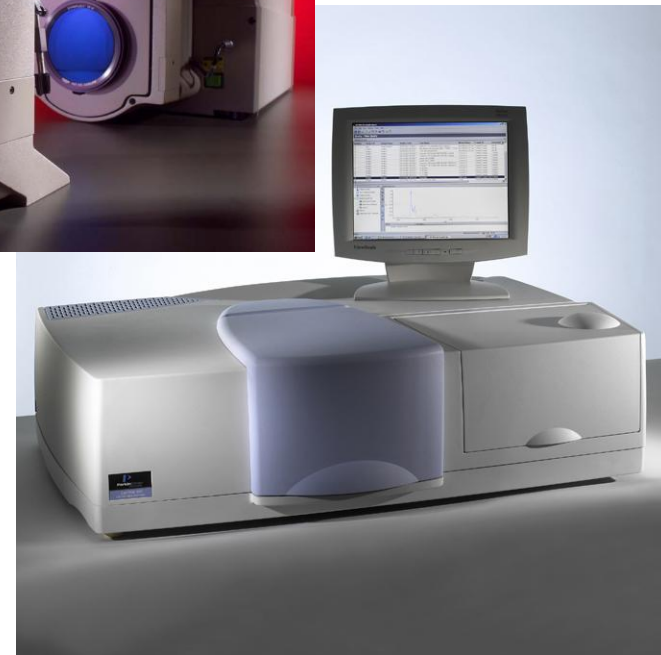
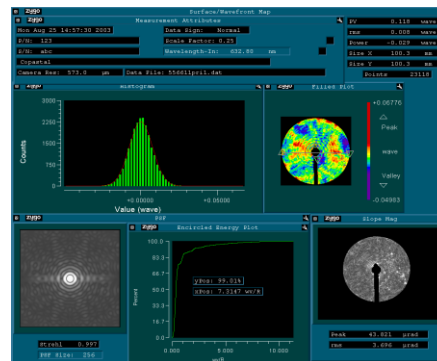
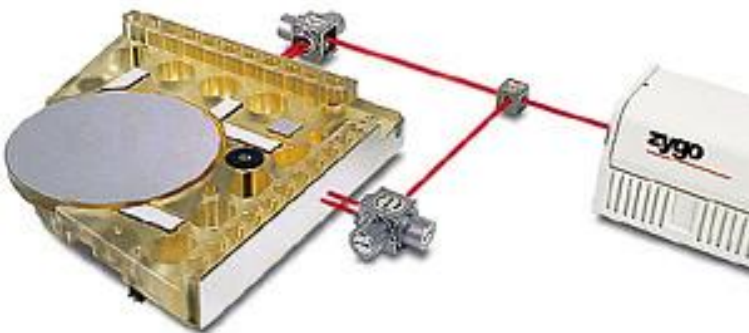
# R 202/202A Detector & Camera Electronics Development Lab

- 600 square feet
- Purpose: to develop electronics for processing sensor outputs in preparation for digitization
- Past: LITE, LASE, GAMS, EVA IR Camera, CALIPSO
- Present: MEDLI, INFLAME
- Future: CLARREO, ACE, ASCENDS, GEO-CAPE



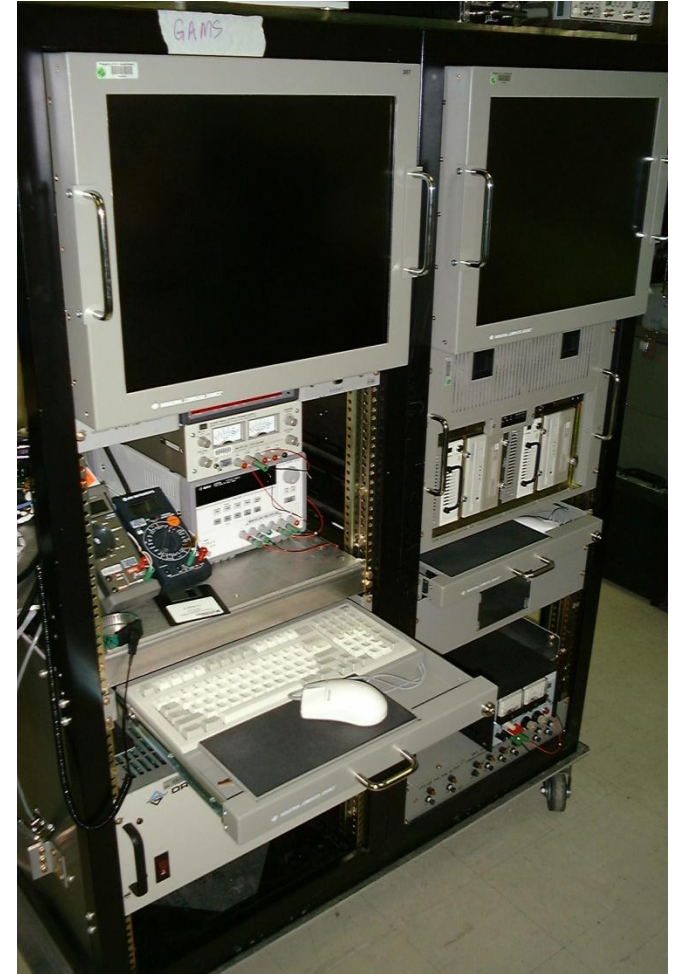
# R 112 Optical Metrology & Calibration Lab

- 1200 square feet
- Contains
  - Zygo GPI and ZMI interferometers
  - Perkin Elmer spectrophotometer
- Purpose: to measure wave fronts, focal lengths, and spectral characteristics of optical components utilized in other labs of the branch
- Past: LITE, LASE, CALIPSO
- Present: INFLAME, ALHAT
- Future: CLARREO, ACE, ASCENDS



# R125/R266 Data Acquisition Systems Development Lab

- 600 square feet
- Purpose: to develop data acquisition system for digitizing, processing, and storing sensor data
- Past: LITE, LASE, GAMS, EVA IR Camera, CALIPSO
- Present: MEDLI, ALHAT, INFLAME
- Future: CLARREO, ACE, ASCENDS, GEO-CAPE





# R300 Rooftop Observatory Lab

- 1000 square feet shared with Laser Remote Sensing (D208)
- Ceiling hatch for up-looking, vertical observing
- 360° field-of-view turret for horizontal observing
- Purpose: to allow focusing of optics and data acquisition of targets at distances greater than 25 meters
- Past: GAMS
- Present: ALHAT
- Future: Lunar Lander Systems



# R128 Flight Bonded Stores

- 600 square feet
- Purpose: storage of flight bonded and controlled stores for instruments that are both operational and in development
- Past: HALOE, LITE, LASE, SAGE-III
- Present: EVA IR Camera, CALIPSO, MEDLI
- Future: LE-X